

## UNITED STATES OF AMERICA

## NATIONAL TRANSPORTATION SAFETY BOARD

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Investigation of:

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SINKING OF THE S.S. *EL FARO*

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ON OCTOBER 1, 2015

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Docket No.: DCA16MM001

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Interview of: STEPHANIE M. GROLEAU

National Transportation Safety  
Board  
Washington, D.C.

Thursday,  
December 1, 2016

# TABLE OF CORRECTIONS TO TRANSCRIPT OF INTERVIEW FOR

**Ms. Stephanie Groleau**  
**Staff Engineer, US Coast Guard Headquarters**

TAKEN ON **December 1, 2016**

PAGE NUMBER	LINE NUMBER	CURRENT WORDING	CORRECTED WORDING
8	8-9	that Mustang survival recommends	that Mustang Survival recommends
32	7	navigation of vessel inspection circular	Navigation and Vessel Inspection Circular
37	3	how you do in your test	how you do an air test
37	12	And I, myself, and the Coast Guard regulator	And I, myself, am the Coast Guard regulator
38	19	immersion suits, and then coming in	immersion suits, and them coming in
39	11	things that are past due, IMO and are going to be,	things that are passed through IMO and are going to be,
41	5	has been an issue that they've had. These come in, and they've	has been an issue that they've had these come in. And they've
44	22	and a MISLE when	and in MISLE when
46	23	it's because it provides equivalency of a life	it's because it provides equivalent buoyancy of a life
49	11	of the risks of onboard servicing in a facility.	of the risk of onboard servicing versus in a facility.
49	20	Yes, that's the only one I'm referring to,	Yes, that's only what I am referring to,
7	10	I believe it was just 2015 and University of Maryland, Notre Dame.	I believe it was just 2015 and Notre Dame of Maryland University.
7	13	Um-hum	Notre Dame of Maryland University
11	23	So, that comes to me.	So, that comes to ENG-4, then to me.
15	1	they have failed then	they have finally failed then
18	1	If the suit	If the ship
33	6	twofold:	threefold:
33	8	hypothermia.	hypothermia, and three, to prevent cold shock.
33	23	face if they don't even have -- depending	face depending
39	7	write a standard,	write a regulation,
39	8	servicing standard	servicing regulation
41	11	Oh, man. I'm not entirely sure, but I --	United States Marine Safety Association

43	4	Ship Safety and Engineering. Ship Safety and Engineering.	Ship Systems and Engineering. Ship Systems and Engineering.
43	10	A safety alert would	A safety alert from ENG-4 would typically
47	21	to write a test on	to write a test with
6	20	I am also subject	I am also a subject
6	22	expert on servicing	expert on is servicing
14	23	So, any information, any suits	So, some information, some suits
14	24	has been 30-plus	Have been 30-plus
14	25	have either come	have come
16	3	water, because when the air -- they filled up the air.	water.
28	24	Yes, they do all of those things that you named.	Manufacturers and facilities typically inspect zippers, lights, attachment points, retro-reflective tape, and auxiliary buoyancy devices. This comes from MSC Circular 1047. Webbing/strength tests are above and beyond those and may occur less frequently at the direction of the manufacturer or facility.
31	3	much higher.	much higher and answered as quickly as possible.

If, to the best of your knowledge, no corrections are needed kindly circle the statement “no corrections needed” and initial in the space provided.

NO CORRECTIONS NEEDED. \_\_\_\_\_  
Initials

**Stephanie Groleau**

Printed Name of Person providing the above information

\_\_\_\_\_  
Signature of Person providing the above information

**03 January 2017**  
Date

## APPEARANCES:

R. JON FURUKAWA, Senior Marine Accident Investigator  
National Transportation Safety Board

PAUL A. WEBB  
U.S. Coast Guard

CDR [REDACTED]  
U.S.

KEITH FAWCETT  
U.S. Coast Guard

PATRICIA A. FINSTERBUSCH  
TOTE Services

LT [REDACTED]  
JAG  
U.S. Coast Guard

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I N T E R V I E W

(10:08 a.m.)

MR. FURUKAWA: It is now 10:08. It is Thursday, December 1, 2016. We're here at the NTSB to interview Ms. Stephanie Groleau. She is in Coast Guard Headquarters ENG-4, the Lifesaving and Fire Safety Division at Coast Guard Headquarters. She's a staff engineer and also the subject matter expert for immersion suits and inflatable life rafts.

And I'll just call you Stephanie for the interview? Okay.

And Stephanie, do you acknowledge that this interview is being recorded?

MS. GROLEAU: I do.

MR. FURUKAWA: Okay. And do you acknowledge that we've discussed the NTSB mandatory briefing items?

MS. GROLEAU: I do.

MR. FURUKAWA: Okay. And we'll go around the room. Please state your name and your affiliation. So, Stephanie, you go first.

MS. GROLEAU: Stephanie Groleau, U.S. Coast Guard Headquarters.

LT [REDACTED] Lieutenant [REDACTED] Agency counsel for the witness, U.S. Coast Guard.

MR. FURUKAWA: Okay. On the my -- let's start with Coast Guard. Paul?

MR. WEBB: Paul Webb, U.S. Coast Guard and Survival Factors

1 Group.

2 MR. FURUKAWA: [REDACTED]

3 CDR [REDACTED] Hi. This is Commander [REDACTED] with the  
4 Coast Guard. I'm a member of the Nautical Workgroup.

5 MR. FURUKAWA: Keith?

6 MR. FAWCETT: Yes. Keith Fawcett, U.S. Coast Guard. I'm a  
7 member of the Human Factors Group and also the Commandant's Marine  
8 Board.

9 MR. FURUKAWA: Okay. Patty?

10 MS. FINSTERBUSCH: Patty Finsterbusch, TOTE Services, member  
11 of the Survival Factors Group.

12 MR. FURUKAWA: Okay. Thank you everybody, and we'll do the,  
13 you know, the interview round robin style. So we'll try to -- you  
14 know, two complete rounds of questions. And let's see. Okay.

15 INTERVIEW OF STEPHANIE A. GROLEAU

16 BY MR. FURUKAWA:

17 Q. Stephanie, can you start off letting us know your  
18 professional background? First, how old are you?

19 A. I'm 30 years old.

20 Q. Okay. And your professional background?

21 A. Sure. Including academic or simply professional?

22 Q. Both.

23 A. My academic background, I have a bachelor's degree in ocean  
24 engineering. I have a master's degree in ocean engineering, and I  
25 have a master's degree in risk management and risk analysis. My

1 professional background, I worked for 6 years for the Army Corps  
2 of Engineers as a ocean engineer doing mostly port and harbor and  
3 coastal engineering. And I also did water resources policy at the  
4 Washington, D.C. level for the Army Corps of Engineers  
5 headquarters.

6 After that, I worked for the Coast Guard for just over a year  
7 doing engineering review of lifesaving equipment for the  
8 Lifesaving and Fire Safety Division. I also take part in  
9 investigations with CG-INV for marine field reports, any equipment  
10 that comes in as faulty or things like immersion suits, life  
11 rafts, anything else that has issues with being deployed wrong or  
12 comes in as maybe being unsafe through the Coast Guard.

13 And I support the field inspectors and any questions they  
14 have while inspecting vessels and boarding, and whether they're  
15 doing that in accordance with the regulations. I also write  
16 international and domestic standards for immersion suits and life  
17 jackets. I do that with Canada and through IMO.

18 And I also write our Coast Guard regulations for a variety of  
19 lifesaving appliances. In addition to be a subject matter expert  
20 on these two, I am also subject matter expert on a variety of  
21 other smaller lifesaving appliances, but the other major one I am  
22 the subject matter expert on servicing of our -- all of our Coast  
23 Guard lifesaving appliances. So, I'm the program manager for --  
24 worldwide for servicing of all of our lifesaving appliances. So,  
25 I'm the main writer for our Coast Guard regulations for anything



1 that has to do with servicing of lifesaving appliances.

2 Q. Okay. Let's see. What year did you get your bachelor of  
3 science in ocean engineering?

4 A. 2008.

5 Q. And where is that from?

6 A. Florida Institute of Technology, or FIT.

7 Q. Your master's?

8 A. 2009, FIT.

9 Q. And risk management?

10 A. I believe it was just 2015 and University of Maryland, Notre  
11 Dame.

12 Q. University of Notre Dame in Maryland or --

13 A. Um-hum.

14 Q. Okay. And you were in Army Corps of Engineers for 6 years.  
15 So, what were the years?

16 A. Let's see, from 2009 to 2015, I believe. Hopefully, I'm  
17 counting that right --

18 Q. Okay.

19 A. -- when I came to the Coast Guard.

20 Q. Okay. And was that as civil service or commissioned officer  
21 or enlisted?

22 A. It is civil service.

23 Q. Okay. And then you started working for the Coast Guard, I  
24 guess, in about 2015?

25 A. Yes, October 2015.

1 Q. Okay. Let's see. Let's see. You sent me some documents on  
2 immersion suit maintenance.

3 A. Yes.

4 Q. Like the Mustang.

5 A. And Kent.

6 Q. The Kent and also the Imperial.

7 A. Um-hum.

8 Q. Let's see. It says here with the Mustang that Mustang  
9 survival recommends a complete inspection of your immersion suit  
10 by a factory authorized inspection and repair facility at  
11 intervals not exceeding every 2 years. Immersion suits 5 years or  
12 older should be inspected annually.

13 And the Kent says air pressure tests should be done at years  
14 3, 5, 7 and 9, then done annually after 10 years. And then it  
15 repeats, if a suit, if a suit is more than 10 years old, an air  
16 pressure test has to be done annually. Does that all sound  
17 familiar?

18 A. Yes.

19 Q. Okay. And then the Imperial Manufacturing Company says --  
20 pretty much just says glue tears with neoprene contact cement, is  
21 what I found. Is that about it?

22 A. The Imperials are so old that I'm honestly not sure. That's  
23 just what I have on record. You'd have to honestly see what the  
24 owners of the suit would have. So, they are required to have the  
25 entire manual. I didn't have the entire manual with me, so I'm

1 not sure what the entire manual says. But that's all I had with  
2 me in my files, so that would be correct.

3 Q. Okay. The owners of the suit, so the shipping company.  
4 Would the manufacturer, if -- you know, because the suits that we  
5 found were from 1986. So at the time, I guess they're about 29  
6 years old.

7 A. I think --

8 Q. '86 and then, you know, the sink, you know, was in -- was  
9 last year, 2015, so 29 years old. You're saying that Imperial was  
10 the first suits to be approved by the Coast Guard?

11 A. Correct. This particular Imperial suit that was sent to me  
12 by you --

13 Q. Uh-huh.

14 A. -- that approval number was the first immersion suit to ever  
15 be approved by the Coast Guard. At the time, it was called an  
16 exposure suit. That's what it was called in our regulations.  
17 Correct.

18 Q. Okay. But over that 29 years or so, like, you know, Mustang  
19 and Kent when they came out with their instructions for  
20 maintenance, wouldn't -- would Imperial come out with -- you know,  
21 update their maintenance procedures?

22 A. I wouldn't know that. They're not required to by any means.  
23 That's up to them. We do not have any regulations stating that a  
24 manufacturer must update their servicing regulations or not. We  
25 don't have a regulation that outlines servicing, like the

1 servicing that is stated in these manufacturer ones at all. The  
2 servicing procedures are up to the manufacturers, and they are  
3 listed individually in their servicing manuals that are sent with  
4 the purchased immersion suits.

5 Q. Okay. You're also the -- you are the Coast Guard program  
6 manager for servicing.

7 A. Correct.

8 Q. And like for life rafts, is that also up to the manufacturer,  
9 or is that -- does the Coast Guard have regulations on servicing  
10 life rafts, inflatable life rafts?

11 A. 46 CFR 160.151 is our servicing regulation for both life  
12 rafts and life raft facilities. That is the main regulation that  
13 the Coast Guard has for servicing and our most robust servicing  
14 regulation. We have a minimum standard of requirements for both  
15 what the facilities must have and what must be done to life rafts  
16 at certain years and what they must do to pass.

17 However, we -- the manufacturers' servicing manual goes above  
18 and beyond what that is. And the certified technicians definitely  
19 accomplish what is written out in our regulations, but like I  
20 said, our regulations are a minimum requirement, and those are by  
21 far accomplished in each manufacturers' servicing manual. And  
22 their manual is, you know, inches thick, and it goes far above and  
23 beyond that and does, and does much more.

24 Q. Okay.

25 A. But there are definitely minimum requirements set out in our

1 CFR.

2 LT [REDACTED] Okay. Just to clarify, what is a facility? You  
3 said facility. What -- can you clarify what you mean by that?

4 MS. GROLEAU: Sure. So, in -- I believe it's -- let me  
5 double check here. Is it 161.151-35? Yes, 161.151-35 [sic] is  
6 where servicing starts. And in that it discusses what needs to be  
7 done for authorization of a life raft facility.

8 U.S. Coast Guard approved life rafts may only be serviced in  
9 a U.S. Coast Guard approved facility. Those facilities are  
10 approved by Commandant, which is delegated down to ENG-4, my  
11 division. And that -- what they need to do to be an approved  
12 facility is also outlined in the CFR.

13 And the inspections, and that is all then delegated down to  
14 the OCMIs to do that. So that is a split responsibility between  
15 the OCMIs and Engineering Division 4.

16 BY MR. FURUKAWA:

17 Q. Okay. Have -- so the local OCMI will go out. Will somebody  
18 from your office go out and, you know, inspect or approve or  
19 disapprove of a life raft facility?

20 A. No. The local -- the regulation very clearly states that the  
21 OCMI must go out, go through certain inspection procedures. They  
22 send that in. They notify, they notify the Commandant via -- we  
23 have chosen to do that via a letter. So, that comes to me.

24 Q. Okay.

25 A. I read the letter. It has certain attachments, and I check

1 that everything is going well with that. I check their MISLE  
2 entries and everything like that. I go through that, and then I  
3 send a letter back to them and the facility and the life raft  
4 manufacturers stating that this is -- confirming that this is an  
5 approved facility.

6 I make sure that that is a public record. Again, that's a  
7 requirement of the regulation. And then all that is uploaded into  
8 MISLE. And then now -- it is now searchable for any vessels so  
9 that they know that this is an approved facility that they may  
10 take their life raft equipment to.

11 Q. Okay.

12 A. Those facilities also regularly service immersion suits.

13 Q. Okay. How long is an approval good for?

14 A. It is -- does not have -- a facility approval are we speaking  
15 of?

16 Q. Um-hum.

17 A. It does not have an expiration.

18 Q. Okay. So, there's no requirement to -- if there's no  
19 expiration date, there's no requirement to renew, I guess?

20 A. No. There's not a renewal. They are periodically inspected  
21 though.

22 Q. Okay. Do you know how often that period is?

23 A. There is not a requirement for a set time. However, there  
24 are, there are -- there is a policy and a risk-based approach as  
25 to how often they go and periodically inspect.

1 Q. Okay. And you're also the -- for life jackets, too?

2 A. I'm one of them. Correct.

3 Q. Okay. Is there -- how robust is that -- are those  
4 inspections or facilities for the life jackets?

5 A. There aren't facilities for life jackets. That is a  
6 completely different regulation and system.

7 Q. Okay. And for immersion suits?

8 A. There are not facilities for immersion suits. There's not a  
9 servicing regulation for immersion suits.

10 Q. Okay. The Mustang and the, and the Kent talked about either  
11 the manufacturer or an approved facility.

12 A. That would be a manufacturer approved facility.

13 Q. Okay.

14 A. So, Manufacturer A might approve some facility at some port  
15 specifically to work on their immersion suits because they know  
16 that they have the manuals and that they are trained and approved  
17 to work on their immersion suits. So, that would be what that is  
18 referring to.

19 Q. Okay. Do you know why the Coast Guard doesn't have a more  
20 robust system for immersion suits, like --

21 A. I do not.

22 Q. Okay. Let's see. The -- I have some new information from  
23 the Coast Guard and from TOTE. First of all, when we talked on  
24 the phone last week or week before, you told me about the typical,  
25 the typical generic immersion suit But you were surprised that

1 the suits that were -- the two suits that were recovered from the  
2 *El Faro* were 29 years old. And can you tell me about, you know,  
3 what you told me about the generic suits for being air tested and  
4 hydro tested at that like 10-year point, 15-year point and all  
5 that?

6 A. Sure. So, in my experience and just so -- well, first let me  
7 talk about this sort of information that I receive. You know, I  
8 don't receive information generally straight from manufacturers.  
9 Unlike life rafts, when an immersion suit fails either at facility  
10 or on board -- typically, they are tested on board a vessel.

11 There's no requirement for any sort of immersion suit failure  
12 to be reported to anybody, so they're not reported. So, we don't  
13 have that sort of data. So typically the sort of information I  
14 get about immersion suit testing or failures is when somebody  
15 thinks that something has gone wrong. Somebody thinks they failed  
16 too early. Somebody thinks a regulation has been violated, or for  
17 some other reason that they think the Commandant should be  
18 involved. And then, that sort of information comes to me. It  
19 might be a field report from the OCMI. It might be the  
20 manufacturer. It might be the servicing facility. It might be  
21 the vessel.

22 So, this is just information that I've gathered over 13  
23 months approximately. So, any information, any suits that have  
24 come to me through any sort of report that has been 30-plus years  
25 old have either come to me because they have failed the test at 30



1 years old, and -- they have failed then. And looking back into  
2 the records, they had not been periodically inspected aboard the  
3 ship as required in the 46 CFR 199, and they had not been able to  
4 provide records of annual inspection. Now we don't have -- the  
5 CFR doesn't call it servicing. It calls it, you know, an  
6 inspection. So, it does differentiate between that.

7 Some of the other ones that I have seen, you know, that have  
8 made it and have been intact at 30 years, again, I -- when either  
9 I or the OCMI has requested records from the vessel to provide  
10 saying can you please show me the vessel log, which they're  
11 required to show, you're donning it quarterly at abandon ship  
12 drills or your periodic inspections in the vessel log, you know,  
13 or your inspections, they either said they weren't done or they  
14 would not provide them to us.

15 So, that's the experience that I've had. I cannot say that  
16 that experience has been everywhere. I do not have access to  
17 manufacturer data. The manufacturers would have obviously much  
18 more data than I have. But the suits that I've seen that are that  
19 old, those are the experiences that I have. Or any other suits  
20 that I've seen that have come in that have been that old,  
21 typically, the few times I've seen them, an inspector has boarded,  
22 seen suits that are that old, has said I want these suits to come  
23 off and be tested. I've seen two instances of that. And those  
24 30-plus year old suits have immediately failed.

25 Q. Can you expand on these two instances?

1 A. Typically, I believe both failed the seam test, which is they  
2 are filled up with air and then the seams are covered with soapy  
3 water, because when the air -- they filled up the air. The soapy  
4 water -- if the seams failed, bubbles come out at the seams, and  
5 so it's very visible that the seams fail. That's a very typical  
6 way for an immersion suit to fail.

7 LT [REDACTED] Is that testing procedure laid out in the  
8 regulations or in the manufacturer's manuals?

9 MS. GROLEAU: In the manufacturer manuals.

10 MR. FURUKAWA: Okay.

11 MS. GROLEAU: Or I should also state that oftentimes  
12 facilities or testing groups often have their own testing  
13 procedures laid out. I know of a couple facilities that, you  
14 know, the manufacturers might state what theirs are but they have  
15 even more stringent testing procedures just because they want to  
16 be more safe. So, there might be those two that might even be  
17 stricter than the manufacturer's, but that is, that is a -- like a  
18 standard typical test.

19 BY MR. FURUKAWA:

20 Q. And this -- the seam test, is that done on board the ship or  
21 done in a facility ashore?

22 A. Both, although typically immersion suits are much more  
23 commonly tested aboard the ship. An issue with that is they are  
24 often not dry all the way when they're packaged back up and put  
25 that in, and that can lead to, that can lead to rot. When they're

1 done in a facility, they often take more care to make sure they're  
2 dry if we're giving them back.

3 Q. Okay. Kent said air pressure testing done at years 3, 5, 7  
4 and 9 and then annual testing after 10 years. And Mustang,  
5 complete inspection of your immersion suit by a factory authorized  
6 inspection or repair facility at intervals not exceeding 2 years.  
7 And immersion suits 5 years and older should be inspected  
8 annually. So, the annual inspections are going to be the air  
9 pressure tests. Do you know of any other tests of the suit?

10 A. Let me think what I've seen. I mean, like I said, it varies  
11 by manufacturer. There's -- I'm trying to think if there's  
12 anything else in here on those. I can't speak to the manufacturer  
13 ones. Those would be too specific to them. However, based on the  
14 regulations, monthly -- so the immersion suits are packaged, you  
15 know, in some sort of kind of almost sealed package.

16 And each month, you are supposed to check that they are kept  
17 where they're supposed to be, which is, you know, essentially in  
18 their, you know -- there's one immersion suit per crew member.  
19 So, they -- it should be labeled as to -- so it's clear per crew  
20 member. It should be kept, you know, obviously not in an engine  
21 room or something like that where it could be damaged or corroded.  
22 It should be kept in an accessible place. It should be taken out  
23 and visually inspected, not necessarily out of the package, but it  
24 should be lifted up, held, visually inspected for, you know, for  
25 any rot, tearing, anything like that.

1       It is mandatory that quarterly, if the suit [sic] is required  
2 to carry immersion suits that during the abandoned ship drills,  
3 which are held monthly, that at least once a quarter, at least  
4 every 3 months during those abandon ship drills, that immersion  
5 suits must be worn. So, they must be totally tried on and donned  
6 unless that vessel for some reason is in very, very warm water,  
7 then an exception may be made and they have to figure something  
8 else out. But typically, those vessels aren't going from very,  
9 very cold water to warm water.

10       So, these suits are being taken in and out of their -- should  
11 be taken in and out of their packaging repeatedly and tried on and  
12 donned, which is very, very important because it's the timing  
13 factor of when an emergency happens. You need to know what suit's  
14 yours, where is the suit and know how to put it on very, very  
15 quickly.

16       And then, so those are, those are really the main things that  
17 should be happening aboard. And then, when an inspector is coming  
18 and boarding, that's what they check. They go -- they check that  
19 there are the correct suits that meet the carriage requirements of  
20 the ship and that the suits are of an approval number, you know,  
21 that is valid and not expired and that, you know, that there's the  
22 right number for the right people.

23       So, that would happen during an inspection. But an inspector  
24 is not necessarily going to be there taking a suit out for every  
25 member. You know, that's not really their job.

1 Q. Okay. For the *El Faro*, going over the records and all that,  
2 they were doing weekly, you know, fire and boat drills. So, they  
3 were, you know, weekly, so much more than the, you know, monthly  
4 requirement.

5 A. Well, I think those are required for the boats.

6 Q. And they were also -- besides each person having an immersion  
7 suit, a life jacket, they also kept, I think, two or three on the  
8 bridge and two in the engine room for the watchstanders at their  
9 functions.

10 So, you know, they may or may not have been, you know, weekly  
11 putting the suits out of their bags and trying them on, but they  
12 are, you know, showing up at least weekly at the fire and boat  
13 drills see.

14 I got from TOTE yesterday *El Faro* pressure tested safety suit  
15 -- survival suits. All suits inspected and pressure tested July  
16 2013 at Liferrafts Incorporated of Puerto Rico. And I don't know  
17 the age of the suits, but I counted that there were 37 Imperial  
18 suits out of 52 on board the ship. I just got this, you know,  
19 yesterday --

20 A. Um-hum.

21 Q. -- and printed it off today, so just to let you know that.  
22 You know, they were tested in 2013 from that third party, I guess,  
23 Liferrafts Incorporated of Puerto Rico.

24 A. Yeah. We talked about that facility on the phone.

25 Q. Okay. And then I also got a -- this morning from the Coast

1 Guard, an email from TOTE. It's subject: *El Faro* immersion suit  
2 test results. And this is dated August 8, 2015. You know, it  
3 says, "Hello, Tim. We landed all 52 immersion suits for test  
4 inspection and all were returned prior to sailing. Out of the 52  
5 landed, 5 were condemned. The chief mate is submitting a  
6 requisition for the jumbo immersion suits as some of those were  
7 condemned. We currently have 47 good immersion suits on board  
8 with the paperwork."

9 And I don't have that one with me now, but I found in the  
10 AMOS system in August there was an invoice for testing 52  
11 immersion suits at Liferrafts Incorporated of Puerto Rico, and then  
12 also after that, also in August another invoice for purchasing  
13 five, you know, brand new immersion suits. But I don't know the  
14 vendor for that one.

15 So, out of all those immersion suits off of the -- that TOTE  
16 provided with, you know, the immersion suit serial number,  
17 location, the rating of who has a suit and brand, from what you  
18 said, in 2013, you know -- well, that doesn't have the dates of  
19 any of these suits, you know. And, you know, 37 of them were  
20 Imperial and the rest are Stearns and Fitzgerald or Fitzwright.

21 A. Fitzwright. Well, Imperial would have to be older because  
22 they haven't been manufactured in a very long time.

23 Q. Do you know when Imperial went out of business?

24 A. I don't.

25 Q. Okay.

1 A. It would be -- it would probably -- you would probably be  
2 able to get some sort of estimate of that in MISLE, not an exact  
3 date but an estimate.

4 Q. Okay. Can we get that later on, after the -- after this?

5 Okay. But, you know, what you told me --

6 LT [REDACTED] If I can just clarify, we'll probably be able to  
7 easily get when they last sought approval.

8 MR. FURUKAWA: Okay.

9 LT [REDACTED] I'm not positive that we'll be able to get the  
10 last -- you know, when they actually went out of business or  
11 whatever. But I think the last time they sought approval will  
12 probably be the easiest thing for us to get.

13 MS. GROLEAU: Yeah, unless somebody went in and marked them  
14 inactive --

15 LT [REDACTED] Right. Yeah, so --

16 MS. GROLEAU: -- which could be an approximate, but --

17 LT [REDACTED] We'll clarify what we're giving you, but I'm not  
18 sure we can give you the exact date that they went out of  
19 business.

20 BY MR. FURUKAWA:

21 Q. Okay. Oh, and that reminds me of something also, too, that  
22 you're telling me the -- when I was trying to find Imperial on the  
23 list of approved equipment, I couldn't find it. That's why, you  
24 know, I submitted that help request. Can you tell me about the  
25 approved or former-may use?

1 A. Sure. So, here let me see exactly what I said on my email to  
2 you. Oh, thanks.

3 Sure. So, first of all, CGMIX, the Coast Guard Maritime  
4 Information Exchange, pulls information from our internal system  
5 of MISLE. And this is -- CGMIX is available to the public. If --  
6 when people look up equipment, anything that's marked as approved  
7 or former-may use means that the public may continue using that  
8 piece of equipment.

9 Approved means that not only has the manufacturer produced  
10 that equipment during a time when the certificate of approval was  
11 valid but that the manufacturer is continuing to produce that  
12 equipment during a current certificate of approval. They're  
13 continuing production.

14 Former-may use means that the piece of equipment you're  
15 looking at, like it might be an EPIRB, was produced maybe in 2000  
16 to 2005. It was produced under a valid certificate of approval,  
17 but the piece of equipment doesn't expire. And the manufacturer's  
18 no longer producing maybe that model anymore. So, it won't show  
19 up as approved because their certificate is not approved anymore.  
20 It means that the manufacturer isn't approved to produce anything  
21 under that 5-year certificate anymore, but this piece of equipment  
22 is okay because it was approved under that particular regulation  
23 and under that certificate.

24 So, it's not as if -- it's not as if it's an illegal piece of  
25 equipment or anything. You may continue to use that equipment,



1 you know, as long as you are -- continue to -- as long as it and  
2 you continue to follow the follow up procedures, any servicing,  
3 anything in the fine print on the certificate and anything that's  
4 referenced in that applicable regulation.

5 Q. Okay. Thank you. And the two survival suits that we found,  
6 you know, because only those two are the ones that I know dates  
7 of, you know, I think they're both 1986. I think they're both  
8 manufactured in June of 1986 and -- you know, we have the serial  
9 numbers and I'm sure they're going to be on that -- on there. You  
10 know, they were on the -- formerly on the *El Morro*. And it was  
11 stenciled out on the back and put *El Faro*. But I find it kind of  
12 hard to believe that it would have passed the test in 2013 and  
13 then again in 2015 if they went to a life raft servicing facility,  
14 a facility that's approved to do life rafts. You know, to me, the  
15 -- an immersion suit should be a whole lot easier to do a, you  
16 know, the air test with the bubbles and all that. Is there any  
17 other way of testing the immersion suits?

18 A. I'm not sure what you're asking.

19 Q. Well, you know, like I said, we recovered two immersion  
20 suits, only two from the *El Faro*.

21 A. Um-hum.

22 Q. And both of them were 29 years old. But what we get from the  
23 document of the -- for the *El Faro*, of the immersion suits that  
24 all passed in -- all suits inspected and pressure tested July 2013  
25 by Liferafts Incorporated of Puerto Rico, and the email that says

1 that they just -- on August 8, 2015, you know, out of 52 suits, 5  
2 are condemned. So, you know, 47 of those passed and only 5 of  
3 them were condemned. And I'm finding it hard to believe that, you  
4 know, the two suits that were found should've passed the 2013 and  
5 2015 test if they're going in and out of the bag, you know,  
6 weekly, required to monthly, you know, that they probably should  
7 have failed the air pressure test, you know, the seam test in  
8 2013, 2015. And those are every 2 years, or they probably should  
9 have been tested annually if it's like Mustang or Kent.

10 If Imperial's last instructions were every 2 years, is that  
11 still valid?

12 A. Is that their instruction?

13 Q. It's -- that's all I found for Imperial. I didn't see an  
14 owner's manual, you know, this was like the easiest thing that I  
15 saw, I guess, for onboard a ship is to, if they find a leak, to  
16 just coat it with cement.

17 A. Whatever the Imperial owner's manual says is valid.

18 Q. Okay. So, if Imperial says every 2 years to pressure test  
19 it, that's good with the Coast Guard, even though Mustang and Kent  
20 say every year after a certain period?

21 A. Correct. You cannot apply one manufacturer to another.

22 Q. Okay. And what do you think about Imperial suits passing in  
23 2015 and then -- or passing 2013 and then again in 2015?

24 A. Well, like I said in my email, it's rare, but I wouldn't say  
25 it's impossible. And this new information that showed me that

1 they actually did condemn some suits makes me think that it's  
2 quite possible.

3 If they hadn't condemned any suits and we had found issues  
4 with them, I would be more suspicious. But the fact that they did  
5 condemn some of them, that points me to believe that they're  
6 honest. Just because they ran abandon ship drills or life boat  
7 and fire drills does not mean that they were taking their  
8 immersion suits out or checking them or donning them. I haven't  
9 seen any evidence that they have.

10 Obviously, we're not going to get the vessel logbook, and  
11 we're not going to see that. So, we can't speak on that. We  
12 don't have any data on that. For all we know, they could have  
13 been in there. They may not have been. We just don't know.

14 We don't have any data from manufacturers saying how many of  
15 their suits have lasted 30 years. All we have is what I've known  
16 in the time that I've seen and from my incident reports that have  
17 come to me. But again, the fact that now we've gone back 2 years.  
18 These are two completely different test facilities, if they've  
19 been the same one.

20 I looked into the Puerto Rican one since they're a U.S. Coast  
21 Guard approved one. We don't have any incident reports or any  
22 problems or issues with them.

23 When something like this happens, I always check to see if  
24 something has been reported, if we've had issues with technicians  
25 or anything with them in the past, if they've had any -- because

1 they're authorized for other equipment. We've never had an issue  
2 with them with any other equipment, with any of their equipment  
3 that they're serviced has failed.

4 The fact that they did condemn some of them, if they had  
5 already started down the path of condemning some of them, I am  
6 confident that they would've condemned what needed to have been  
7 condemned. So, I don't really see an issue with it.

8 Again, we just don't know what they did or did not do, taking  
9 the immersion suits in and out of their package or donning and not  
10 donning them aboard the ship. And frankly, we're not going to  
11 know, so we can't really speak to that. And we just, we just  
12 don't have the data, and we just can't make that conjecture, so --

13 MR. FAWCETT: Hey, Jon. This is Keith Fawcett. Could I ask  
14 two brief follow-ups?

15 MR. FURUKAWA: Sure.

16 BY MR. FAWCETT:

17 Q. Well, I'm just wondering. Of the two recovered suits, one  
18 was damaged. The other suit, I'm just wondering, has it been  
19 considered for testing? And then my other follow-up question is  
20 are the suits that have been tested, stenciled or marked that --  
21 on the date they were tested so that I, as a mariner, if I picked  
22 it up and looked at it, would know it had been tested to the  
23 manufacturer's specifications.

24 A. No. Immersion suits, unlike life rafts or life raft  
25 canisters, are not marked like that. When they're tested, they

1 just keep records of those on the ships, like the -- kind of like  
2 the TOTE Services purchase orders and servicing orders like that.  
3 Those are kept aboard the ship for when inspectors come on so they  
4 can see that they have been serviced.

5 But no, the neoprene or anything like that is not, is not  
6 marked like that. And honestly, it wouldn't really make much of a  
7 difference because, like I said, each manufacturer is completely  
8 different. So, one inspector going on one ship would find  
9 something completely different than going on another cargo ship.

10 MR. FURUKAWA: Keith, anything else?

11 MR. FAWCETT: Well, just the other -- the follow-up. Has  
12 consideration been given to the testing of the undamaged,  
13 recovered suit.

14 MR. FURUKAWA: Oh, okay. Paul and I went to look at them,  
15 and Patty also at different times. But the last time that I was  
16 there, it was just me. And I inspected the suits, took some  
17 photos and all that, but after that I think everything went -- you  
18 know, the Coast Guard gave everything back to TOTE, you know, the  
19 life boat, all the immersion suits, you know, all survivor gear  
20 went back to TOTE. So, I'm not sure, you know, what happened with  
21 all that stuff. Patty, do you know?

22 MS. FINSTERBUSCH: Not off the top of my head, but I would be  
23 able to find it.

24 MR. FURUKAWA: Okay. And Keith, I can confirm that there  
25 were no, you know, test dates or anything like that on the suits,

1 you know, for, you know, biannually. It was just the  
2 manufacturer, serial number, lot number, date of manufacture,  
3 stuff like that.

4 MR. FAWCETT: All right. Thank you, Jon. I have more  
5 questions later, but I appreciate that brief one.

6 MR. FURUKAWA: Well, since we're -- we started, why don't we  
7 go around? So, go ahead and ask your questions, Keith.

8 BY MR. FAWCETT:

9 Q. All right. Thank you very much. Ms. Groleau, other than  
10 electronic or pyrotechnic devices, are there any other lifesaving  
11 devices that have an expiration date on them --

12 A. I do not believe so.

13 Q. -- that you can recall?

14 A. I do not believe so.

15 Q. And then is it, is it a regulatory requirement that the  
16 inspection process will comply with the manufacturer's equipment  
17 manual for an item such as an immersion suit?

18 A. No.

19 Q. And then do you know if the individual manufacturer's testing  
20 requirement -- you said that some facilities were more stringent,  
21 but do they inspect things like zippers, webbing, closures,  
22 attachment points for like EPIRBs or water marker lights? Or is  
23 it simply the inspection for the air permeability at the seams?

24 A. Yes, they do all of those things that you named.

25 Q. And then do we have -- as a Coast Guard, do we have a process

1 in place so that the mariners or the public can report  
2 deficiencies, in particular with immersion suits? In other words,  
3 do we, do we advertise that in some way and then have a process  
4 where that word gets directly to you?

5 A. There are several ways. They can report it, I mean,  
6 immediately to the manufacturer. If they -- if it's UL listed,  
7 they can report it to the UL; it comes directly to us. They can  
8 report it via CGMIX; it comes directly to us. They can report it  
9 via the investigations link on our public website. Then that goes  
10 to INV; that comes directly to me.

11 So, there are a lot of different ways it can come in. They  
12 can also report it to their local OCMI. Oftentimes, if it's off a  
13 vessel, then that will come also to us.

14 Q. And then, you know, following up, we often ask this to  
15 shipping companies, but is there a documented procedure in place  
16 that states once the Coast Guard receives a report, you know, from  
17 an external source or internal source, the step-by-step procedures  
18 on how we follow up those reports so that we can assess, you know,  
19 the suitability and quality of the lifesaving appliance program?

20 A. I don't understand that -- what you mean by suitability and  
21 the last few words you said. Could you clarify that?

22 Q. Yeah. In other words, if I'm on a ship and I find, say, two  
23 or three immersion suits or life rings for that matter that I  
24 don't feel comply with specifications, and I make a notification  
25 to the Coast Guard as an external party, are there documented

1 procedures that explain what the Coast Guard will do to follow up  
2 with those reports both to the person that makes the report and  
3 the manufacturer so that that deficiency can be corrected?

4 A. To my knowledge, on the engineering side, no. I cannot speak  
5 for investigations though. I am not sure about from their side.  
6 Usually --

7 Q. Okay. And that --

8 A. Sorry. If I may clarify on that, too. Technically, on that  
9 sort of thing they -- I'm putting this in quotation marks, "have  
10 the lead," but if it is a lifesaving piece of equipment, it then  
11 goes to Engineering 4. We do kind of all the background  
12 information and then pass it back over to investigations who  
13 finishes it up. So, they might have something that we do not.

14 Q. Okay. And so, the resolution of the notification, would  
15 there be -- I'm assuming. I don't want to get this wrong, but  
16 there would be no timeline -- you know, like the Coast Guard will  
17 investigate and get back to you in a certain period of time?

18 A. If it comes to us through, you know, a CGMIX or a type  
19 approval email or something like that, we send out a notification  
20 that says, you know, we will -- you know, it's in our queue; we  
21 will get back to you and work with you within 60 days. But that's  
22 usually --

23 Q. All right. Thank you very much.

24 A. But that's usually typically for something that is somebody  
25 that is requesting, you know, approval of lifesaving equipment or



1 something like that. We do have the ability to prioritize things.  
2 Typically, if it's something that's an incident or something  
3 safety related, it's prioritized much higher.

4 Q. Thank you very much, Stephanie. That's all I have.

5 A. Thank you.

6 MR. FURUKAWA: Okay. [REDACTED] any questions?

7 CDR [REDACTED] I do have just a few follow-up questions.  
8 Thank you.

9 BY CDR [REDACTED]

10 Q. Again, this is Commander [REDACTED] with the Coast Guard.

11 Ms. Groleau, there -- as you mentioned a few minutes ago,  
12 there's no expiration date for survival suits and the limit on  
13 their service life is whether they remain in a serviceable  
14 condition. Can you describe for us a little bit -- in a little  
15 bit more detail the concept of that term, serviceable? Obviously,  
16 there are Coast Guard inspections, visual inspections by the owner  
17 or the crew. You spoke about sending them off to the testing  
18 facilities in accordance with the manufacturer's recommendation.  
19 Are there any other considerations that would go into whether a  
20 survival suit remains, quote/unquote, "in that serviceable  
21 condition?"

22 A. Sure. So, I mean, if it doesn't pass a visual inspection by  
23 the crew or by a Coast Guard inspector that's boarded the vessel,  
24 that would be an immediate failure. You know, if it clearly has  
25 dry rot or, you know, the seams are coming apart or, you know, a

1 zipper doesn't work or something like that, that would be an  
2 immediate failure.

3 But serviceable condition would mean, you know, that really  
4 any of the tests that the previous gentleman had listed had failed  
5 and couldn't be, couldn't be fixed, that, you know, that would be  
6 deemed a condemnation of the suit.

7 Q. Okay. And we also have a navigation of vessel inspection  
8 circular on survival suits. I don't recall the number off the top  
9 of my head, and I'm not at my desk. Can you describe that for us  
10 in general terms?

11 A. I'm afraid I don't have that in front of me, so no, I  
12 wouldn't be able to.

13 Q. Okay. We can, we can pull that up later, but NVICs, in  
14 general, are recommendations to industry, correct, and don't carry  
15 the force of a regulation? So, whatever we might find in the NVIC  
16 would be considered a recommendation to owners and operators. Is  
17 that correct?

18 A. Correct. NVICs are -- yes, NVICs are just policy and, yes,  
19 cannot be enforced. They're just a recommendation as opposed to  
20 our regulation which can be enforced.

21 Q. Thank you. My final question, you mentioned some of the  
22 failures that you've seen in the area of the seams, the seam test  
23 that has failed. Can you describe for us the implications of a  
24 seam test failure on survivability if that suit were to be -- were  
25 to remain in service?

1 Obviously, that would result in water passing through that  
2 seam. Would that -- and can you explain how that might affect the  
3 flotation of the device versus the protections against  
4 hypothermia, the two different elements of survivability?

5 A. Sure. So, the entire purpose of an immersion suit is  
6 twofold: one, to provide a minimum amount of buoyancy; and two,  
7 to provide a minimum amount of thermal protection from  
8 hypothermia. The minimum amount of thermal protection from  
9 hypothermia is to prevent a 2-degree temperature drop over 6  
10 hours.

11 Really that's about it. You know, it's not to save  
12 somebody's life in, you know, hurricane, wind and wave forces.  
13 You know, if they're out there by themselves, you know, it's got a  
14 limited function. So, if the seam test fails and that allows  
15 water ingress, obviously, one, it's permitting more and more water  
16 into the suit, which is going to reduce the amount of buoyancy  
17 that the suit's going to give a person.

18 And the lower the buoyancy, the lower the freeboard of the  
19 face. And with wind and with -- if it's in calm water, that's not  
20 going to be as big of a deal. The worse the wind and wave  
21 conditions, the more water that that person is going to take into  
22 the suit, two, and the more water that they're going to take into  
23 their face if they don't even have -- depending on how well their  
24 face mask and face covering is taking.

25 Additionally, the more water that's going to be taken into

1 the suit, the lower their body temperature is going to drop and  
2 the faster they're going to succumb to hypothermia, which is going  
3 to really accelerate the, you know, possible death faster than the  
4 buoyancy issue will. So, that failure is really a big deal.

5 Q. Great. Thank you. That's all the questions I have. Thank  
6 you for your time today, really appreciate it, and I'll pass it  
7 on.

8 A. Thank you, sir.

9 MR. FURUKAWA: Okay. Paul?

10 MR. WEBB: I don't have any questions at the moment.

11 MR. FURUKAWA: Okay. Patty?

12 MS. FINSTERBUSCH: No questions at this time.

13 BY MR. FURUKAWA:

14 Q. Okay. And let's see. We'll do one more round. Let's see.  
15 My follow-ups are going to be -- so, let's see, have you seen any  
16 of these Imperial suits before, the 1986 first approvals?

17 A. I have never seen one of these in person.

18 Q. Okay, because it's -- like what -- it's possible that a 29-  
19 year-old suit, you know, passed the air pressure test, being that  
20 five of them were condemned. And they were taken off the ship and  
21 -- but the two that we found, you know, were on board so they  
22 couldn't have been the condemned ones.

23 I'm trying to think. Is it possible that the neoprene or,  
24 you know, the rubber or foam or the seam stitching and all that  
25 might have been tougher back in 1986 rather than today?

1 A. I couldn't speak to that.

2 Q. Okay. But it's possible if these were well taken care of  
3 that they would have passed these tests in 2013 and 2015. Let's  
4 see. Should --

5 LT [REDACTED] Can I ask a question on that?

6 MR. FURUKAWA: Sure.

7 BY MR. [REDACTED]

8 Q. So do you see suits come to your office, or do suits get  
9 raised to your level that pass?

10 A. The particular suit won't come in, but I will get pictures  
11 and video and reports on suits.

12 Q. That pass or that fail?

13 A. Usually that fail, but I have been in facilities watching  
14 tests of suits that pass and fail. I've actually even done the  
15 testing of immersion suits myself, been a test subject in  
16 immersion suits that have, that have tested.

17 Q. And do we have any kind of idea of a rate of failure for  
18 suits?

19 A. Of -- do you mean of approval testing or during?

20 Q. No, during maintenance and the life-cycle testing throughout  
21 the suit's life?

22 A. We don't. Like most things, if we don't require the data to  
23 be logged, it is not logged. So, we do not have that data. We,  
24 you know, we don't, we don't even require -- we don't even  
25 authorize facilities, so we don't even have -- we don't, we don't

1 authorize facilities, so unlike life rafts, we don't even have  
2 that.

3 Even if -- even in life raft facilities that we authorize, we  
4 don't require that sort of data to be catalogued and logged. So,  
5 with immersion suits, definitely not. We don't have any of that  
6 sort of data.

7 MR. FURUKAWA: Okay. [REDACTED] anything else? Okay.

8 BY MR. FURUKAWA:

9 Q. And Stephanie, you said that you were the program manager for  
10 servicing of lifesaving appliances and that you write regulation  
11 or you're at the international level with Canada.

12 A. Yes.

13 Q. And I guess the IMO also.

14 A. Yes.

15 Q. Okay. Does the IMO, or does Canada, does Canada have a  
16 program for servicing facilities as a nation?

17 A. For immersion suits?

18 Q. Right.

19 A. No.

20 Q. Okay. So, it's all manufacturer for them also?

21 A. Correct.

22 Q. How about the IMO?

23 A. No.

24 Q. No.

25 A. As far as I'm aware, no one worldwide does right now.

1 Q. Okay. And there's no standard -- you don't know of any  
2 Canadian or IMO standard of testing for immersion suits, like a  
3 written policy of, you know, this is how you do in your test, the  
4 seam test?

5 A. No, because that's not an appropriate place to include  
6 servicing. You know, standards are essentially for, you know,  
7 this is how you -- these are the components that are appropriate.  
8 This is how this is. This is how you do an initial approval of  
9 how a suit is built. These are the colors that are acceptable and  
10 this and this and this.

11 Being on the standards group, this has been brought up. And,  
12 you know, we have talked about this. And I, myself, and the Coast  
13 Guard regulator in the group and there's one Transport Canada  
14 regulator, and everybody else is just standards writers. But the  
15 appropriate place for, you know, for servicing is in a regulation  
16 and not a, not a standard. So, no.

17 Q. Okay. So, not for the IMO but for Port State Control?

18 A. Yes, and domestic, yeah.

19 Q. Okay. Should the Coast Guard have inspection and testing  
20 standards for immersion suits?

21 A. I believe so.

22 Q. Okay. Let's see. And then, going back to when Commander  
23 [REDACTED] was asking about failure of, you know --

24 A. I'm sorry. Could you repeat that last question?

25 Q. Should the U.S. Coast Guard, you know, should America have an

1 inspection and testing standard of immersion suits?

2 A. I'm sorry. Let me clarify my answer. No, it should have a  
3 regulation for testing of immersion suits, not a standard.

4 Q. Okay. So, like life rafts, I guess?

5 A. Correct.

6 Q. That's a regulation, not a standard.

7 A. Correct.

8 Q. Okay.

9 BY MR. [REDACTED]

10 Q. Can I ask a follow-up? Does any other flag state have a  
11 requirement for testing of immersion suits?

12 A. For servicing testing?

13 Q. Right.

14 A. Not that I've been able to find.

15 Q. So then why do you say that the U.S. should have a servicing  
16 testing regulatory requirement?

17 A. Because other flag states and issues have been coming up and  
18 filtering up to the Coast Guard about quality control in  
19 immersions suits, and then coming in for their inspections and  
20 failing very early in the years of inspections as opposed to the  
21 10, 15, 20 years. Not with the manufacturers that we have  
22 typically dealt with at the Coast Guard that we know and trust to,  
23 you know, to make very good equipment, but with newer  
24 manufacturers. They're using very cheap material. And so, this  
25 has kind of become an issue, and things have been -- has been



1 filtering up and filtering through. And we believe that the U.S.,  
2 through the Coast Guard, should be paving the way for safety for  
3 immersion suits by having a servicing regulation.

4 I don't believe that it would be at the level of the life  
5 raft servicing one, but that there should be something of a  
6 minimum requirement there as a minimum standard. It is currently,  
7 actually, on my to do list to write a standard, an immersion suit  
8 life raft -- immersion suit servicing standard, kind of based off  
9 the life raft one. However, it is a low priority right now, as it  
10 isn't really funded. But we also have a lot more important things  
11 to do, things that are past due, IMO and that are going to be, you  
12 know, turned on at the switch of a button at certain timelines.  
13 So, those are a higher priority as opposed to something like that.

14 So, it is something that we've talked about and have deemed  
15 important within our division. They just haven't happened yet.

16 Q. Is there an IMO based life raft servicing standard, or is  
17 that only in our domestic regulations that there's a servicing  
18 requirement?

19 A. I am not sure.

20 Q. Okay.

21 MR. FURUKAWA: Could you find that out?

22 MS. GROLEAU: I can.

23 MR. FURUKAWA: Okay. [REDACTED] anything else?

24 MR. [REDACTED] No. That's it.

25 BY MR. FURUKAWA:

1 Q. Let's see. When Commander [REDACTED] was asking you about the  
2 results of a leaky seam on an immersion suit, water ingress could  
3 -- you know, hypothermia. As far as the buoyancy part, I must not  
4 have been listening, but is that going to affect buoyancy? You  
5 know, can a person in a survival suit or an immersion suit sink  
6 because of the leaky seam?

7 A. It would have to be a very, very leaky seam. I mean, it  
8 would probably have to split. And it would also depend on the fit  
9 of the suit. I mean, that's pretty -- that would take a lot of  
10 conjecture. Depending on -- I mean, it really depends on the fit  
11 of the suit.

12 Some people fit differently in universal size suits than  
13 others. You know, the wrist seals, the neck seals, the face  
14 seals, some people it's tight to their face. Some people it's  
15 not, and a lot of water is already coming in through their face  
16 and their wrist seals than others, than a bigger person. So, it  
17 would definitely depend on that.

18 Q. Okay. So, the bigger danger is hypothermia?

19 A. Yes.

20 Q. Okay. And Lieutenant [REDACTED] asked you about IMO, Port State  
21 Control with, you know, these are the suits that you said that you  
22 found were failing sooner than maybe the 5 years and all that.  
23 Are you saying it was quality of control of immersion suits? So,  
24 you're getting this from the Port State Control inspectors, are  
25 letting you know that they're finding suits that are, that are

1 failing?

2 A. I have heard from maybe one or two inspectors. Some other  
3 ones are just some facilities, U.S. Coast Guard approved life raft  
4 facilities have told us, and the USMSA group has told us that this  
5 has been an issue that they've had. These come in, and they've  
6 had immersion suits that are starting to fail at their first or  
7 second inspection.

8 Q. USMMA?

9 A. USMSA.

10 LT [REDACTED] And what is that?

11 MS. GROLEAU: Oh, man. I'm not entirely sure, but I --

12 UNIDENTIFIED SPEAKER: I think it's Mine Safety Appliances.

13 MR. FURUKAWA: Oh, MSA, okay. Never heard of it with a U.S.  
14 in front of it.

15 BY MR. FURUKAWA:

16 Q. Okay. These suits from newer manufacturers, are they on  
17 foreign ships or are they on U.S. ships?

18 A. They've been on U.S. ships.

19 Q. They've been on U.S. ships. Okay.

20 A. Yeah. And I do try not to speak to just hearsay, and I have  
21 received the actual failure reports of these suits, the  
22 condemnation reports of them.

23 Q. Okay. And how old were these suits?

24 A. They were only a couple years old.

25 Q. Okay. Were some like Kent and Mustang -- the third year for

1 Kent is when it's supposed to get air tested, air pressure tested,  
2 and the Mustangs are every 2 years. So 2 to 3 years it should be  
3 okay --

4 A. Yeah.

5 Q. -- for a generic immersion suit. Okay. Let's see.

6 Lieutenant [REDACTED] asked you about what was the IMO -- if the IMO  
7 standard, but does IMO have a regulation for life rafts?

8 A. Well, SOLAS does not have a regulation for servicing of  
9 immersion suits.

10 Q. For life rafts, too?

11 A. Oh, oh, oh, life rafts. No, I don't think so, but I will --  
12 I'll have to reread it and check. So, usually those are done by  
13 authorizing bodies, which is some sort of, you know, state. So  
14 like, you know, the United States had gave the Coast Guard to be  
15 an authorizing body. The U.K., Canada, Australia, those are the  
16 typical authorizing bodies that have, you know, do these  
17 approvals. But I'll have to, I'll have to check on that.

18 Q. Okay. So, you've heard a lot of this at the domestic level,  
19 but you're also on a committee with the IMO. Have you heard any  
20 of this from any of your other committee mates?

21 A. No, because I haven't been deeply involved with any of that,  
22 with any of that. I'm not on, I'm not on the SSE IMO committee.  
23 I am just -- I am involved in IMO as when they pass, you know,  
24 they pass things, like currently I'm writing a regulation in  
25 response to MSC.402(96). Then I would write regulations in

1 response to those to match, you know, what IMO passes as a MSC  
2 thing.

3 Q. Okay. And what's the SSE committee?

4 A. Ship Safety and Engineering. Ship Safety and Engineering.

5 Q. Okay. With these suits that you said that, you know, are  
6 failing for the quality control side, has the Coast Guard put out  
7 a -- what do they call those -- a safety alert concerning some --  
8 if these are -- has it been so much that same manufacturers that  
9 are failing that you put out a safety alert on any of these?

10 A. No. A safety alert would be if something, you know, is  
11 violating the regulation. If it was built in accordance with the  
12 regulation, then we look at that and it was, then there's no  
13 regulatory action to be taken.

14 Q. Okay.

15 A. You know, because we don't have anything in the regulation to  
16 take regulatory action against. Or a standard of ours, you know,  
17 that they're incorporated by reference to take anything against.  
18 So, that's why, you know, currently right now there's nothing to  
19 do about that.

20 Q. Okay.

21 A. Yeah, you just hope that word of mouth spreads that  
22 particular manufacturers aren't good to deal with, but you know,  
23 when a vessel and their operator sees that this immersion suit  
24 costs a fraction of the cost of that immersion suit, they would  
25 like to go buy the cheaper one. Then they find out later that it

1 fails very early.

2 Q. Okay. Is there word spread through the, through the Port  
3 State Control inspectors, the Coast Guard Port State Control, that  
4 look out for these brands of survival suits that, you know, that  
5 they're failing?

6 A. Not to my knowledge, no.

7 MR. FURUKAWA: Okay. Let's see. And we'll go around once  
8 more.

9 Keith, do you have anything?

10 MR. FAWCETT: No. Thank you very much.

11 MR. FURUKAWA: [REDACTED]

12 CDR [REDACTED] No further questions. Thank you.

13 MR. FURUKAWA: Paul?

14 MR. WEBB: No further questions. Thank you. It was  
15 informative.

16 MR. FURUKAWA: Patty?

17 MS. FINSTERBUSCH: No questions.

18 MR. FURUKAWA: Okay. [REDACTED]

19 LT [REDACTED] I don't have any.

20 MR. FURUKAWA: Okay. So, for like a tasking -- a taskers,  
21 before we go off, the Coast Guard is going to look for the NVIC --  
22 or the NVIC for survival suits and a MISLE when Imperial went out  
23 of business or the last letter that was requesting approval.

24 And Patty, for TOTE, you guys are going to go and find out  
25 the status of the two survival suits that went back.

1 MS. FINSTERBUSCH: I will check on it.

2 MR. FURUKAWA: Okay. Let's see. And you're also going to  
3 look at, for Coast Guard, if there's anything at the IMO level for  
4 survival suit testing or whatever.

5 MS. GROLEAU: Um-hum.

6 MR. FURUKAWA: Okay. And okay, thank you very much  
7 Stephanie. So, let's see, so the interview's over. Is there  
8 anything that you'd like to add or change?

9 MS. GROLEAU: Sure, I'd like to add a couple things. I would  
10 like to caution against testing the remaining suit. It was pushed  
11 beyond its limits due to the hurricane forces. And if you do test  
12 it, please be aware that you can't compare it linearly to any  
13 previous test data, either from the approval testing or any of the  
14 inspection testing, just due to the forces that it was under.  
15 Certainly, you can gather the data, but it can't be -- cannot be  
16 compared to anything else. And certainly, it can't be used to  
17 show whether it's in compliance with anything or not.

18 Additionally, I'd just like to close saying that, you know,  
19 no matter what kind of servicing regulation the Coast Guard may  
20 have or not, they certainly wouldn't allow an immersion suit to  
21 withstand hurricane force winds or waves or really, you know,  
22 increase the rate of survival through that sort of situation  
23 anyway. So, as important as that, as that is for the Coast Guard,  
24 I can't say that that sort of thing would have made a difference,  
25 in my professional opinion, or that that would have made a

1 difference on, you know, the ripping of the damaged suit or not.

2 But that's about it, and thank you for having me and listening.

3 MR. FURUKAWA: Okay. And thank you and --

4 MR. FAWCETT: I have, I have a brief follow-up, Jon.

5 MR. FURUKAWA: Yes, Keith.

6 BY MR. FAWCETT:

7 Q. Stephanie, if you're still there, if I'm a mariner and I look  
8 at my PFD that's in my state room and I look at the valise with  
9 the immersion suit, most mariners, I believe, will think that the  
10 immersion suit will offer a higher level of protection in any  
11 adverse condition. Of course it will in low temperature  
12 environments, you know, Alaska trade and high latitudes or low  
13 latitudes. But there's an impression that the survival suit will  
14 offer a higher degree of protection.

15 And is there any way you think we can counter that where a  
16 traditional personal floatation device, you know, industrial grade  
17 provided on a commercial vessel will offer faster donning,  
18 quicker, you know, putting it on quicker and getting off the  
19 vessel quicker?

20 A. Well, an immersion suit does offer more protection and does  
21 offer the same buoyancy that a life jacket would provide. There's  
22 a reason that there's not a life jacket on the immersion suit. If  
23 there isn't one it's because it provides equivalency of a life  
24 jacket. And if an immersion suit is required on the vessel, it's  
25 because they need to wear it. So, I wouldn't recommend that. I



1 mean, if a mariner thinks that the immersion suit offers more  
2 protection, they're correct.

3 Q. Okay. And does that balance with the ease of donning and the  
4 ability to be dexterous when you're in it? In other words, if I  
5 flop down on the deck in a sheltered area and then have to move  
6 over and get in a life boat, life raft, facilitate the launching  
7 of lifesaving equipment, I will be encumbered by the exposure suit  
8 -- correction, the immersion suit, while I'm trying to do that.

9 A. Correct. But again, that's why our regulations mandate that  
10 you wear these quarterly when doing your abandon ship drills and  
11 don them and check them. I mean, that's why I get so concerned  
12 when I see that maybe these mariners in these ships aren't donning  
13 them frequently and aren't practicing.

14 I mean, when we test them for approval testing, and I've done  
15 this -- you know, you have to don them within -- it's either a  
16 minute or 2 minutes, you know, and that's including getting, you  
17 know, your ankle straps on your booties and your gloves and  
18 everything. You know, and it's making sure that your suit is your  
19 suit. You're not supposed to just have suits for everybody and  
20 you grab them, you know, like you're, you know, you're just  
21 grabbing a pencil, you know, to write a test on. It's -- your  
22 suit is your suit, and you should know everything about it and how  
23 it fits and how to try it on.

24 Q. Right.

25 A. Really the issue is, you know, should we be, you know,

1 pushing people to get in a life jacket because it's easier? No,  
2 we should be trying to enforce the current regulation that we have  
3 that, you know, is keeping our -- it should be keeping our  
4 mariners safer by, you know, trying to enforce the abandon ship  
5 drills the way they should be and them donning their suits,  
6 because those suits are going to save their lives because, you  
7 know, hypothermia is going to kill them.

8 MR. FAWCETT: Okay. Thank you very much.

9 BY MR. FURUKAWA:

10 Q. Okay. That was the -- is there anything you'd like to add or  
11 change?

12 A. No.

13 Q. Okay. Are there any questions that we should have asked but  
14 did not?

15 A. Hmm, let me think. A question that you could have asked is  
16 about when suits and other equipment are serviced, about the -- I  
17 would say the chain of ownership. It just has more to sometimes  
18 do with life rafts and other things, but this can have to do with  
19 immersion suits, too.

20 An issue we are starting to have with lifesaving equipment is  
21 when they're serviced at a servicing facility, sometimes it's  
22 serviced at a facility, and then it goes to somebody else and it  
23 goes to somebody else, and then it goes in a warehouse and then  
24 eventually makes it way to the ship.

25 I have no idea if this happened in any of these instances,

1 but that has been happening. And so the chain of ownership is  
2 hard to trace back, and it's hard to discover what exactly  
3 happened to some of the equipment between it getting serviced and  
4 then going to the ship. Now, it doesn't really happen at onboard  
5 servicing, but that has been an issue.

6 Another question or digging deeper into being, you know,  
7 whether onboard servicing should really be allowed anymore. Yes,  
8 it's cheaper. If we did a regulation, we would have -- I would  
9 have to do a full economic analysis of the burden of going to  
10 facilities instead of onboard servicing. But I believe that there  
11 should be investigation of the risks of onboard servicing in a  
12 facility. That's all I can think of right now.

13 Q. And that's onboard servicing for survival suits?

14 A. Yes.

15 Q. Immersion suits or -- and/or life rafts?

16 A. Well, life rafts aren't allowed, just immersion suits.

17 Q. Just immersion suits, okay. Would that include having  
18 someone, a third party, coming out, coming out and servicing them  
19 on board?

20 A. Yes, that's the only one I'm referring to, not the crew  
21 periodic inspection, just the actual maintenance, onboard  
22 maintenance, yes by a third party.

23 Q. Okay. And do you have any suggestions for preventing a  
24 recurrence of something like this?

25 A. I don't. I don't have enough knowledge or data of the

1 incident as a whole to have any suggestions.

2 Q. Okay. And is there anybody else that we should interview?

3 A. I believe you already talked to Marty Jackson on the phone.

4 Q. What's that?

5 A. Did you already talk to Marty Jackson on the phone? Okay.

6 Q. He's the guy in Puerto Rico?

7 A. No, no, no. He's in Engineering-4. There's no one else to  
8 speak to about servicing.

9 Q. Okay.

10 A. Marty Jackson knows a little bit about, you know, like the  
11 components and construction of immersion suits. But other than  
12 that, no.

13 Q. But you know the servicing?

14 A. Yes. I'm the one who does the servicing, all the current  
15 approvals and all the standards and regulation writing.

16 MR. FURUKAWA: Okay. And that's going to be about it. It is  
17 now -- well, Stephanie, thank you very much.

18 MS. GROLEAU: Sure.

19 MR. FURUKAWA: And thank you everybody for calling in. So  
20 right now, it is 11:31 Eastern Standard Time on Thursday, December  
21 1st and we are ending the interview with Ms. Stephanie Groleau,  
22 Coast Guard Headquarters Engineering-4, Lifesaving and Fire Safety  
23 Division, staff engineer. Thank you.

24 (Whereupon, the interview was concluded at 11:31 a.m.)  
25

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF:                SINKING OF THE S.S. *EL FARO*  
                                      ON OCTOBER 1, 2015  
                                      Interview of Stephanie A. Groleau

DOCKET NUMBER:                DCA16MM001

PLACE:                         Washington, D.C.

DATE:                         December 1, 2016

was held according to the record, and that this is the original,  
complete, true and accurate transcript which has been transcribed  
to the best of my skill and ability.

\_\_\_\_\_  
William Jackson  
Transcriber